

REMARKS

Claims 1-73 remain pending, wherein claims 1, 31, 32, 37 and 67 have been amended. Each of the independent claims has been amended to further clarify that each pointing vector points to a source of a received RF signal. Dependent claim 32 has been amended to correct a minor typographical error. Favorable reconsideration is respectfully requested.

The final Office Action includes a statement regarding a requirement for claimed features that relate to maintaining a constant phase center to be shown in the Abstract or drawings. (See, the last two lines of page 3.) In response, Applicants have replaced the Abstract with one describing such features recited in the independent claims. Support for the amended Abstract is found throughout the original disclosure, especially in pages 20-24 of the specification and in Figure 13.

The final Office Action maintained the rejection of claims 1-73 under 35 U.S.C. §103, as being obvious over Dixon, Greenspan, alleged admissions of prior art, and U.S. Patent No. 6,178,333 to Feuerstein et al. This rejection is respectfully traversed.

The Office Action includes statements regarding Applicants' specification alleging that Applicants admit the claimed invention to be of prior art. Applicants respectfully dispute these characterizations by the Examiner and submit that these allegations amount to an improper use of Applicants' own disclosure against them. For instance, the Action states: "Additionally, the provision of a common phase center for each of the beams is obvious, if not inherent, in view of the requirement of such processing GPS carrier phase measurements, see the applicant's specification [0069]." (See, the sentence spanning pages 2 to 3.) It is respectfully submitted, however, that the Examiner has taken a description of Applicants' technique for maintaining a constant phase center in an array including a center antenna, as disclosed in paragraph 0069 of Applicants' specification, and has twisted its characterization from one of Applicants' invention to alleged "admissions of prior art." The Examiner goes on to use this mischaracterization in a proposed combination of the Feuerstein et al., Dixon and Greenspan patents to reject Applicants' claims.

It is respectfully submitted that Applicants' invention description of the use of conventional antennas in paragraph 0037 does equate to an admission of prior art with respect

to the claimed combinations of specific features, as alleged by the Examiner. Moreover, the allegation of an inherent phase center in either Greenspan or Dixon is not provided with any sound technical reasoning that such claimed features would necessarily be the case in the systems and methods of the applied references. See, MPEP § 2112. For instance, what parts of Greenspan and Dixon would necessarily disclose the specific features of *a center antenna and maintaining a phase center for the array of antenna elements by adjusting the center antenna to a same phase shift for each of the reception lobes* as set forth in independent claim 1 and similarly in independent claims 31, 37 and 67. Applicants respectfully submit that these features are not disclosed in either of Greenspan or Dixon. Furthermore, these documents do not appear to mention anything with respect accuracy and precision, as disclosed in Applicants' specification.

Next, in lines 13-16 of page 3 of the Action, the Examiner states "the specification also makes it clear that the technique of applying the same phase shift to the center element of an array for each of multiple beams maintains a constant phase center which is a requirement for accurate and precise carrier phase measurements." While with this statement is correct insofar that it is considered in the context of Applicants' description of the invention, the conclusion reached by the Examiner concerning Applicant's invention allegedly being "within the skill of an artisan and required" (see page 3, lines 16-18) is not based on any evidence that would be sufficient to establish a *prima facie* case of obviousness. MPEP § 2143.01 instructs such statements must be accompanied some objective reasoning to combine the teachings of the references to establish a *prima facie* case.

The Examiner next states "[i]f the array comprises a center element, it would be required to have a phase shift that is common to all of the beams, otherwise, it would not share a common center." (See page 3, lines 4-6.) It is not clear what reference is alleged to teach this concept and requirement. Furthermore, because it is stated as a condition, it is not clear how the Examiner is using it to show features that are not taught in the prior art. If the rejection is maintained in the next communication to Applicants, it is respectfully requested that the Examiner provide further clarification and a citation for this teaching.

With respect to the proposed combination including the Dixon, Greenspan and Feuerstein et al. patents, neither Dixon nor Greenspan include any mention of an "array including a center antenna and a group of antenna elements surrounding the center antenna," and that "a phase center for the array of antenna elements antenna is maintained by adjusting the center antenna to a same phase shift for each of the reception lobes," as set forth in independent claim 1, and as similarly in each of independent claims 31, 37 and 67. Dixon and Greenspan simply are not concerned with problems related to phase center variation and ways in which such variations can be avoided. Furthermore, the Feuerstein et al. patent is directed to a cellular telephone system in which sectors within a cell are formed based on predetermined patterns and subscriber load. It does not relate to systems or methods by which lobes are formed in a direction determined from coordinate information of RF sources, such as in Dixon and Greenspan. It is respectfully submitted, therefore, one of ordinary skill in the art would not have been led to combine the disparate teachings of Feuerstein with Dixon and Greenspan, as suggested by the Examiner, without the benefit of having first viewed Applicants own disclosure. Of course, such hindsight reasoning is impermissible.

Furthermore, none of Dixon, Greenspan, and Feuerstein et al. teaches or suggests the claimed features relating to *a center antenna and maintaining a phase center for the array of antenna elements by adjusting the center antenna to a same phase shift for each of the reception lobes* as claimed. Because none of these documents disclose these claimed features, even if one were to consider a combination of these documents for the sake of argument, such combination would not have taught or suggested the combinations of features recited in the independent claims.

By contrast, the present invention steers reception lobes about a common constant phase center by adjusting a center antenna to a same phase shift for each of the reception lobes. Because the path length to the center antenna is maintained with such provision, very precise and accurate measurements, such as GPS measurements, may be obtained with the present invention.

For at least these reasons, Applicants respectfully submit that the combination of Dixon, Greenspan, Feuerstein et al., and the allegations concerning admissions of prior art

fail to teach or suggest each and every feature of the claimed combination of features set forth in independent claims 1, 31, 37 and 67. Accordingly independent claims 1, 31, 37 and 67 are patentable.

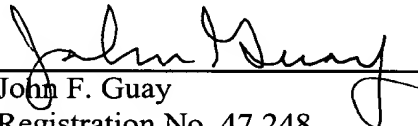
Dependent claims 2-30, 32-36, 38-66 and 68-73 are patentable at least for the reasons given above with respect to their parent claims, and for the combinations of additional features recited.

From the foregoing, Applicants respectfully submit that the present application is in condition for allowance. Notification of the same is earnestly solicited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By:



John F. Guay
Registration No. 47,248

P.O. Box 1404
Alexandria, Virginia 22313-1404
703-838-6696

Date: August 9, 2004